

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 March 2002 (07.03.2002)

PCT

(10) International Publication Number
WO 02/17876 A2

(51) International Patent Classification⁷: **A61K 7/50**

06611 (US). **PAREDES, Rosa, Mercedes**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT 06611 (US).

(21) International Application Number: **PCT/EP01/08576**

(22) International Filing Date: **24 July 2001 (24.07.2001)**

(74) **Agent: MULDER, Cornelis, Willem, Reinier**; Unilever PLC, Patent Department, Colworth House, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB).

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
60/229,202 **31 August 2000 (31.08.2000)** **US**

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(71) Applicant (*for AE, AG, AU, BB, BZ, CA, CY, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NZ, SD, SG, SL, SZ, TT, TZ, UG, ZA, ZW only*): **UNILEVER PLC** [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB).

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except AE, AG, AU, BB, BZ, CA, CY, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NZ, SD, SG, SL, SZ, TT, TZ, UG, ZA, ZW*): **UNILEVER NV** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant (*for IN only*): **HINDUSTAN LEVER LIMITED** [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Mumbai 400 020, Maharashtra (IN).

Published:

— *without international search report and to be republished upon receipt of that report*

(72) Inventors: **HAYWARD, Christine**; Unilever Home & Personal Care USA, 40 Merritt Boulevard, Trumbull, CT

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **FOAMING ANTI-BACTERIAL CLEANSING SKIN PRODUCT**

(57) Abstract: A foaming cleansing product is provided as a cleansing composition packaged in a non-aerosol pump dispenser. The dispenser includes a container for holding a liquid composition, a dispensing head with a housing enclosing a pump mechanism and a screen material in the flow path to convert liquid composition into a foam

BEST AVAILABLE COPY

WO 02/17876 A2

- 1 -

FOAMING ANTI-BACTERIAL CLEANSING SKIN PRODUCT

This application claims the benefit of U.S. provisional application no. 60/229,202, filed August 31, 2000.

5

The present invention relates to a foaming cleansing product that provides a more sanitary washing experience, in particular a foam cleansing product together with a countertop dispenser, which provides an instant foam and
10 superior deposition of anti-bacterial agent.

Preferably the inventive product is used with a countertop mechanical pump allowing the foam to be dispensed directly onto the hands without soiled hands touching (and soiling)
15 the pump or the sink tap. Preferably the pump is situated in a stable position so that the forearm can be used to depress the pump and dispense the product. This results in a more hygienic cleansing process. In addition, initial dilution with water is not required since the foam can be
20 distributed prior to rinsing.

An unexpected benefit of the inventive foamed cleansing product is improved delivery of an anti-bacterial agent, when present, from an instant foam delivery. This form of
25 application unexpectedly enhances the delivery of antibacterial agent, since the same amount of agent is applied directly to the skin in the form of concentrated foam or lather as compared to dilution required by standard hand cleansing liquids to make lather for even distribution
30 of the product on the skin.

- 2 -

A further unexpected benefit of the inventive cleansing product is the enhanced deposition of the hydrophobic antibacterial agent on the skin, such as triclosan, compared to the deposition of the same agent in a liquid cleansing product without the foam.

Yet another unexpected benefit of the inventive cleansing product is the substantially improved cleansing performance with waxy type makeup, and the like, compared to the use of liquid cleansing products which do not produce instant foam.

Detailed description:

In one aspect, the inventive composition comprises a surfactant blend including an anionic surfactant, and at least one surfactant selected from a nonionic and an amphoteric surfactant, a cationic polymer, and a hydrophobic antibacterial agent, wherein the composition contains less than 0.05 wt. % of a water insoluble emollient; the composition being dispensed by a mechanical pump to provide a foam, i.e. a mixture of air and liquid. Preferably the foam has a density range of 0.05 to 0.20 g/ml. Preferably the inventive cleansing product has a weight ratio of anionic surfactants to the sum of nonionic and amphoteric surfactants in the range of 0.2 to 1 to 3 to 1; more preferably in the range of 1.5 to 1 to 2.5 to 1.

As used herein, the term "hydrophobic" in relation to antibacterial component means a material which is more lipid soluble, i.e. non-aqueous soluble, than aqueous soluble. The total amount of surfactants in the inventive composition

- 3 -

does not exceed about 12.0 wt. %, and preferably does not exceed 10.5 wt. %. The viscosity of the inventive composition is in the range of 1 to 500 cps, preferably 1 to 200 cps at 25 °C as measured by a Brookfield HBDVII+ viscometer using 0.5 rpm and spindle #41. Preferably the composition contains a water-soluble emollient, including one or more polyhydric alcohols, more preferably glycerin and polyethylene glycol. Preferably the water-soluble emollient is in the concentration range of about 0.5 to 10 wt. % of the composition.

Water insoluble emollients require sufficient solubilizers such as surfactants when formulated into aqueous systems. With regard to the inventive composition, the pump requires a low surfactant concentration for optimum viscosity and foam production which limits the total amount of water insoluble material (including fragrance and the hydrophobic anti-bacterial agent) to a level capable of being dispersed or suspended therein. Furthermore, the inventive composition provides for excellent skin feel as determined by techniques which would be well known to the skilled person, notwithstanding the lack of water insoluble emollients.

Compositions of the present invention are preferably free of any oil phase, especially free of water insoluble emollients. The term "free" means less than 0.05%, preferably less than 0.01% emollient, and water insoluble means any emollient having a solubility in distilled water at 25 °C of less than about 1 gm per 100 mL, more preferably less than about 0.1 gm per 100 mL. Absent water insoluble

- 4 -

emollients, the compositions can be transparent and have improved foamability.

In another aspect of the invention, enhanced deposition of hydrophobic anti-bacterial agents to the skin is provided which accompanies the application of the inventive composition. This effect is illustrated in Example 2 below.

In a further aspect of the invention, surprisingly efficient waxy cosmetics removal is provided following the application and rinsing of the inventive composition. Waxy cosmetics are here defined as cosmetics containing wax such as beeswax, carnauba wax, paraffin wax, and the like, preferably at a level in excess of about 10 wt.% by weight of the composition. Representative examples include mascara, lipstick, cream blush, and the like. Such cosmetics may also optionally contain film forming polymers such as polyvinylpyrrolidone and copolymers of vinylpyrrolidone with e.g. polyurethane; and the like. This effect is illustrated in Example 3 below.

Anionic surfactants

A further component of cleansing compositions according to the present invention is an anionic surfactant. Illustrative but not limiting examples include the following classes:

(1) Alkyl benzene sulfonates in which the alkyl group contains from 9 to 15 carbon atoms, preferably 11 to 14 carbon atoms in straight chain or branched chain configuration. Especially preferred is a linear alkyl benzene sulfonate containing about 12 carbon atoms in the alkyl chain.

- 5 -

(2) Alkyl sulfates obtained by sulfating an alcohol having 8 to 22 carbon atoms, preferably 12 to 16 carbon atoms. The
5 alkyl sulfates have the formula $\text{ROSO}_3 \text{--M}^+$ where R is the C8-22 alkyl group and M is a mono- and/or divalent cation.

(3) Paraffin sulfonates having 8 to 22 carbon atoms, preferably 12 to 16 carbon atoms, in the alkyl moiety. These
10 surfactants are commercially available as Hostapur SAS from Hoechst Celanese.

(4) Olefin sulfonates having 8 to 22 carbon atoms, preferably 12 to 16 carbon atoms. Most preferred is sodium C14-C16
15 olefin sulfonate, available as Bioterge AS 40.®.

(5) Alkyl ether sulfates derived from an alcohol having 8 to 22 carbon atoms, preferably 12 to 16 carbon atoms, ethoxylated with less than 30, preferably less than 12, moles of ethylene
20 oxide. Most preferred is sodium lauryl ether sulfate formed from 2 moles average ethoxylation, commercially available as STEOL CS230 or Standopol ES-2.(R).

(6) Alkyl glyceryl ether sulfonates having 8 to 22 carbon
25 atoms, preferably 12 to 16 carbon atoms, in the alkyl moiety.

(7) Fatty acid ester sulfonates of the formula: $\text{R}^1 \text{CH}(\text{SO}_3 \text{--M}^+) \text{CO}_2 \text{R}^2$ where R^1 is straight or branched alkyl from about C8 to C18, preferably C12 to C16, and R^2 is a straight or

- 6 -

branched C1 to C6 alkyl group, preferably primarily C1, and M+ represents a mono- or divalent cation.

(8) Secondary alcohol sulfates having 6 to 18, preferably 8 to 16 carbon atoms.

(9) Fatty acyl isethionates having from 10 to 22 carbon atoms, with sodium cocoyl isethionate being preferred.

(10) Dialkyl sulfosuccinates wherein the alkyl groups range from 3 to 20 carbon atoms each.

(11) Alkanoyl sarcosinates corresponding to the formula $RCON(CH_3)CH_2CH_2CO_2M$ wherein R is an alkyl or alkenyl group having about 10 to about 20 carbon atoms and M is a water-soluble cation such as ammonium, sodium, potassium and trialkanolammonium. Most preferred is sodium lauroyl sarcosinate.

20 Nonionic surfactants:

Co-surfactants are present in the inventive composition to aid in the foaming, detergency and mildness properties. At least one surfactant selected from a nonionic and amphoteric surfactants are the preferred co-surfactants. Suitable nonionic surfactants include C10 -C20 fatty alcohol or acid hydrophobes condensed with from 2 to 100 moles of ethylene oxide or propylene oxide per mole of hydrophobe; C2 -C10 alkyl phenols condensed with from 2 to 20 moles of alkylene oxides; mono- and di-fatty acid esters of ethylene glycol such as ethylene glycol distearate; fatty acid monoglycerides; sorbitan mono- and di-C8-C20 fatty acids;

- 7 -

and polyoxyethylene sorbitan available as Polysorbate 80 and Tween 80.(R). as well as combinations of any of the above surfactants.

5 Exemplary non-ionic surfactants suitable for use in the compositions according to the present invention include primary amines such as cocamine (available as Adagen 160D ® from Witco) and, in a preferred embodiment, alkanolamides such as cocamide MEA (available as Empilian CME ® from
10 Albright and Wilson), lauramide MEA (available as Empilan LME ® from Albright and Wilson), lauramide MIPA, lauramide DEA, and mixtures thereof, and the like.

Other useful nonionic surfactants include alkyl
15 polyglycosides, saccharide fatty amides (e.g. methyl gluconamides) as well as long chain tertiary amine oxides. Examples of the latter category are: dimethyldodecylamine oxide, oleyldi(2-hydroxyethyl)amine oxide, dimethyloctylamine oxide, dimethyldecylamine oxide, dimethyltetradecylamine
20 oxide, di(2-hydroxyethyl)tetradecylamine oxide, 3-didodecoxy-2-hydroxypropyldi(3-hydroxypropyl)amine oxide, and dimethylhexadecylamine oxide.

Amounts of the nonionic surfactant may range from 0.5 to 5 Wt.
25 %, preferably from 1 to 4 wt. %, and most preferably from 2 to 3 wt. % of the composition.

Amphoteric Surfactants

Amphoteric surfactants such as betaines may be used in the
30 inventive formula. Suitable betaines may have the general

- 8 -

formula $RN^+ (R^1)_2 R^2 COO^-$ wherein R is a hydrophobic moiety selected from alkyl groups containing from 10 to 22 carbon atoms, preferably from 12 to 18 carbon atoms; alkyl aryl and aryl alkyl groups containing 10 to 22 carbon atoms with a
5 benzene ring being treated as equivalent to about 2 carbon atoms, and similar structures interrupted by amido or ether linkages; each R^1 is an alkyl group containing from 1 to 3 carbon atoms; and R^2 is an alkylene group containing from 1 to about 6 carbon atoms. Sulfobetaines such as
10 cocoamidopropyl sultaine are also suitable.

Examples of preferred betaines are dodecyl dimethyl betaine, cetyl dimethyl betaine, dodecyl amidopropyldimethyl betaine, tetradecyldimethyl betaine, tetradecylamidopropyldimethyl
15 betaine, and dodecyldimethylammonium hexanoate. Most preferred is cocoamidopropyl betaine available as Tegobetaine F.(R) sold by Th. Goldschmidt AG of Germany. Amounts of the betaine may range from about 0.5 to 5%, preferably from about 1 to 4%, more preferably from 2 to 3%
20 by weight of the total composition.

Specific examples of these amphoteric surfactants include the alkali, alkaline earth, ammonium and trialkanolammonium salts of cocoamphoacetate, cocoamphodiacetate,
25 cocoamphopropionate, cocoamphodipropionate and mixtures thereof. Most preferred is sodium cocoamphoacetate available as Miranol HMA from the Rhone Poulenc Corporation. Similar surfactants are also available as Amphoterge.(R) from Lonza Inc., Fair Lawn, N.J. While the sodium salt is
30 preferred, other cations can also be employed including

- 9 -

lithium, potassium, magnesium and calcium. Amounts of the amphoteric surfactant may range from about 0 to 12%, preferably from about 1 to 10.5%, more preferably from about 2 to 6% by weight of the composition.

5

Moisturizing ingredients

Moisturizing ingredients may also be included in the compositions of the present invention. Water-soluble moisturizers or emollients such as polyhydric alcohol-type humectants are particularly preferred. Typical polyhydric alcohols include glycerol (also known as glycerin), polyalkylene glycols and more preferably alkylene polyols and their derivatives, including propylene glycol, dipropylene glycol, polypropylene glycol, polyethylene glycol and derivatives thereof, sorbitol, hydroxypropyl sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and mixtures thereof, and the like. For best results at least one humectant is preferably glycerin. The amount of humectant may range anywhere from about 0.5 to 10.0%, preferably between 1 and 2% by weight of the composition.

Preservatives

Preservatives can desirably be incorporated into the cosmetic compositions of this invention to protect against the growth of potentially harmful microorganisms. Suitable preservatives are DMDM Hydantoin, and EDTA salts. Other useful preservatives include alkyl esters of para-hydroxybenzoic acid, propionate salts, and quaternary ammonium compounds, iodopropynyl butyl carbamate, phenoxyethanol, methyl paraben, propyl paraben,

- 10 -

imidazolidinyl urea, sodium dehydroacetate and benzyl alcohol, and the like. The preservatives should be selected having regard for the use of the composition and possible incompatibilities between the preservatives and other
5 ingredients in the composition. Preservatives are preferably employed in amounts ranging from 0.01% to 2% by weight of the composition.

Minor adjunct ingredients may be present in the cosmetic
10 compositions. Among them may be the water-soluble vitamins, colorants, fragrances and opacifiers, and the like. Each of these substances may range from 0.05 to 5%, preferably between 0.1 and 3% by weight of the composition.

15 Advantageously, the compositions of the invention may contain a foam densifying agent. Examples of this substance are waxy materials with a melting point greater than 20°C, preferably greater than 40°C. Illustrative are ethoxylated glyceride esters such as PEG 6 caprylic/capric glycerides
20 and PEG 75 soy glycerides. Also useful are C8-C12 acyl lactylates such as sodium lauroyl lactylate sold as Pationic 138 C.(R). available from the Patterson Chemical Company. Amounts of these agents may range from about 0.1 to 2%, preferably from about 0.5 to 1% by weight of the
25 composition.

Cationic polymers

Cationic polymers are also used in the inventive composition. Examples of the polymeric type include
30 cationic cellulose derivatives, cationic starches, copolymers of a diallyl quaternary ammonium salt and an

- 11 -

acryl amide, quaternized vinylpyrrolidone vinylimidazole polymers polyglycol amine condensates, quaternized collagen polypeptide, polyethylene imine, cationized silicon polymer (e.g. Amodimethicone), cationic silicon polymers provided in
5 a mixture with other components under the trademark Dow Corning 929 (cationized emulsion), copolymers of adipic acid and dimethylaminohydroxypropyl diethylenetriamine, cationic chitin derivatives, cationized guar gum (e.g. Jaguar C-B-S, Jaguar C-17, Jaguar C-16, etc. manufactured by the Celanese
10 Company), quaternary ammonium salt polymers (e.g. Mirapol A-15, Mirapol AD-1, Mirapol AZ-1, etc., manufactured by the Miranol Division of the Rhone Poulenc Company). Most preferred is polyquaternium-10 available as Polymer JR400 sold by the Amerchol Corporation.

15

Amounts of the cationic polymer may range from about 0.01 to 3.0 %, preferably from about 0.01 to 1.0 %, and most preferably from about 0.01 to 0.5 % by weight of the composition.

20

In a preferred embodiment, the compositions of the present invention are transparent. By the term "transparent" is meant having a maximum transmittance of light of at least 4% of any wavelength in the range of 400 to 700 nm through a
25 sample 1 cm thick. A transparent composition is one which also permits sufficient light transmittance to enable reading of newspaper print through a thickness commensurate with a diameter of the container employed with the herein described dispenser.

30

- 12 -

Antimicrobial actives

Examples of suitable antibacterial agents which can be used herein include, but are not limited to, the dicarbanilides, for example, triclocarban also known as trichlorocarbanilide, 5 triclosan, hexachlorophene and 3,4,5-tribromosalicylanilide, and the like. A preferred antibacterial agent herein is triclosan. Other suitable antibacterial actives include pharmaceutically-acceptable salts of β -lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, 10 doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methenamine, minocycline, neomycin, netilmicin, paromomycin, 15 streptomycin, tobramycin, miconazole and amantadine and mixtures thereof, and the like.

Non-aerosol foaming dispenser

An element of the cleansing product according to this 20 invention is a non-aerosol foaming dispenser. A suitable dispenser may be mechanical and is generally characterized by a container for storing the composition (preferably a transparent container), a dispensing head defined by a housing containing a pump, and a dip tube for transferring 25 the composition from the container into the dispensing head. Foam is created by requiring the composition to pass through a screen material which may be a porous substance such as a sintered material, a wire (plastic or metal) gauze screen or similar structures.

30

Suitable mechanical dispensers are described in U.S. Pat.

- 13 -

No. 3,709,437 (Wright), U.S. Pat. No. 3,937,364 (Wright),
U.S. Pat. No. 4,022,351 (Wright), U.S. Pat. No. 4,147,306
(Bennett), U.S. Pat. No. 4,184,615 (Wright), U.S. Pat. No.
4,598,862 (Rice), U.S. Pat. No. 4,615,467 (Grogan et al.)
5 and U.S. Pat. No. 5,364,031 (Tamiguchi et al.). Most
preferred however is a device owned by the Airspray
International Corporation described in WO 97/13585 (Van der
Heijden). All these patents are incorporated herein by
reference.

10

The Airspray device comprises a container for storing a
cleansing composition and a dispensing head, the latter
including at least a concentric air pump and liquid pump.
Each of the pumps has a piston chamber with a piston
15 displaceable therein and an inlet and discharge, and an
operating component for operating the two pumps. The
operating component is integral with one of the pistons and
comprises an outflow channel with a dispensing opening.
Shut-off mechanisms, rendering it possible to suck up air or
20 liquid, respectively, and dispense them, are present in the
inlet and discharge of the pumps. The air pump includes a
double-acting shut-off device which can be operated actively
by the operating component. The shut-off device prevents
both the inlet of air to the air pump and discharge of air
25 therefrom. The air piston is able to be moved freely at
least over a small distance with respect to the operating
component.

Other suitable foaming dispensers may include squeeze
30 foamers. Squeeze foamer packages are well known as
exemplified by the disclosures in the following patents that

- 14 -

are incorporated herein by reference. U.S. Pat. Nos.:
3,709,437, Wright; 3,937,364, Wright; 4,022,351, Wright;
4,147,306, Bennett; 4,184,615, Wright; 4,598,862, Rice; and
4,615,467, Grogan et al.; and French Pat. 2,604,622,
5 Verhulst.

When squeeze foamers are used, the composition is placed in
the container reservoir (plastic squeeze bottle). Squeezing
the container with the hand forces the composition through a
10 foamer head, or other foam producing means, where the
composition is mixed with air and then through a
homogenizing means which makes the foam more homogeneous and
controls the consistency of the foam. The foam is then
discharged as a uniform, non-pressurized aerated foam.

15

Except in the operating and comparative examples, or where
otherwise explicitly indicated, all numbers in this
description indicating amounts of material ought to be
understood as modified by the word "about".

20

The following examples will more fully illustrate the
embodiments of this invention. All parts, percentages and
proportions referred to herein and in the appended claims
are by weight unless otherwise illustrated.

25

- 15 -

Example 1

Solutions 1 to 5 represent embodiments of the inventive composition

5

Table 1

	% active in formula				
INCI Ingredient	Solution 1	Solution 2	Solution 3	Solution 4	Solution 5
Water	q.s.100	q.s.100	q.s.100	q.s. 100	q.s. 101
tetrasodium EDTA	0.078%	0.078%	0.078%	0.078%	0.078%
SLS	4.600%				
SLES, 2 EO	3.80%	5.00%	4.00%	5.60%	5.00%
Cocoamidopropyl Betaine		2.50%	2.52%	1.00%	1.00%
Alpha olefin sulfonate			2.43%		
Decyl Glucoside					1.00%
Cocamide MEA	1.20%	0.40%			
Sodium Lauroamphoacetate				0.50%	
Sodium Lauroyl lactylate				0.20%	
Polyquaternium-10	0.13%	0.07%	0.05%	0.05%	0.07%
Wheatgermamidopropyl Hydroxypropyl Dimonium Hydrolyzed Wheat Protein		0.05%			0.05%
PEG-400		0.50%			
PEG 75 Soy Glycerides				0.20%	
Glycerin	1.00%	1.00%		1.00%	1.00%
PEG-6 Caprylic/Capric Glycerides		0.70%			0.50%
DMDM Hydantoin	0.20%	0.20%	0.20%	0.20%	0.20%
Citric Acid for pH adjustment	q.s. pH 4.5	q.s. pH4	q.s. pH 4	q.s. pH 5.5	q.s. pH 4
Fragrance	0.50%	0.50%	0.50%	0.50%	0.50%
Triclosan	0.15%	0.15%	0.15%	0.15%	0.15%
Lactic Acid			2.00%		
sodium hydroxide			0.80%		
pH	4.5	4	4	5.5	4

- 16 -

Example 2:

The following procedure for antibacterial deposition testing was used to evaluate foam vs. liquid performance with regard to skin deposition.

Procedure for deposition testing

Pre Wash:

- 10 • Wet forearms. Rub Dove bar in wet hands for 10 rotations of bar.
- Wash both forearms for 30 seconds. Rinse for 15 seconds.
- Wait 30 minutes and take first extraction.

15 Extraction Procedure:

- Place 1 inch glass cup on forearm.
- Dispense 3 ml of Isopropanol into cup.
- Scrub with glass stir rod for 30 seconds.
- Draw off liquid and place in a glass vial.

20

Wash procedure:

For foam: Take 1 pump (Airspray International Co.) of foam product (solution 1 described in table 1). Rub for 30 seconds on forearm. Rinse for 10 seconds. Pat dry.

- 25 For liquid: Take 1 mL of neat liquid (not dispensed through Airspray pump). Rub for 30 seconds on other forearm. Rinse for 10 seconds. Pat dry.

Take the second extraction.

30

- 17 -

Pre and post extractions are measured for triclosan content.

Results:

5 Table 2.

Subject #	Triclosan deposited, $\mu\text{g}/\text{cm}^2$	
	Foam	Liquid (Comparative)
1	0.08364	0.05450
2	0.13093	0.07452
3	0.08119	0.06389
4	0.11169	0.21042

Thus, the results demonstrate that 3 out of 4 panelists had significantly more triclosan deposited from the foam than from the liquid cleanser.

10

Example 3:

Solution 1 (as described in table 1) foamed (through the
15 Airspray pump) and liquid (not dispensed through Airspray pump) was evaluated for waxy makeup removal.

Makeup removal protocol

- 20 1) Mark off two 3.5x2.5 cm rectangles on the inner side of each forearm.
- 2) Take skin color measurements using the Minolta Chromameter, 3 readings within each rectangle
- 3) Apply makeup as given below per type (all Revlon
- 25 Colorstay):
- Mascara - spread uniformly using spatula for even coverage allow 10 minutes for drying

- 18 -

4) Take color measurements on the dried makeup.

5) Wash with test product, as follows:

- Wet arms.
 - Apply 1 ml of liquid or foam to the makeup site.
 - 5 • Rub product on site for 30 seconds
 - Rinse soap off for 15 seconds
- 6) Take skin color measurements on cleaned skin
- 7) Calculate the % makeup removed

10 Table 3

Liquid (Comparative)		Foam (Inventive)	
Percent removal	Std. Deviation (n=15)	Percent removal	Std. Deviation (n=15)
68.43	23.00	81.30	20.00

The foregoing description and examples illustrate selected embodiments of the present invention. In light thereof
15 variations and modifications will be suggested to one skilled in the art, all of which are within the scope and spirit of this invention.

- 19 -

CLAIMS

1. A foam producing, cleansing product comprising:
 - (a) a foamable cleansing liquid composition including
5 from about 0.1 to about 12 wt. % of a surfactant blend selected from anionic surfactants, amphoteric surfactants, nonionic surfactants, and mixtures thereof; the surfactant blend having at least one anionic surfactant and at least one surfactant selected
10 from an amphoteric and nonionic surfactant;
from about 0.01 to 3.0 wt. % of a water soluble cationic polymer;
from about 0.05 to 1.5 wt. % of a hydrophobic anti-bacterial compound;
 - 15 (b) a foam dispenser for dispensing a foam from the liquid composition, the dispenser including a reservoir to contain the liquid composition, a manually actuated mechanism for generating a volume of foam, and a foam dispensing nozzle
20 attached in fluid communication with the manually actuated mechanism; and
 - (c) wherein said liquid composition contains less than about 0.05 wt. % of a water insoluble emollient.
- 25 2. A foam producing, cleansing product according to claim 1 wherein the foam produced has a foam density of about 0.05 to 0.20 g/ml when dispensed from the foam dispenser.
- 30 3. A foam producing, cleansing product according to claim 1 or claim 2 wherein the weight ratio of the anionic

- 20 -

surfactant to the sum of the nonionic and amphoteric surfactants is in the range of 0.2 to 1 to 3 to 1.

4. A foam producing, cleansing product according to any of
5 the preceding claims wherein the total amount of surfactants does not exceed about 10.5 wt % of the composition.
5. A foam producing, cleansing product according to any of
10 the preceding claims wherein the viscosity of the liquid composition is in the range of about 1 to 500 cps at 25° C.
6. A foam producing, cleansing product according to any of
15 the preceding claims further comprising from about 0.5 to 10.0 wt. % of a water soluble emollient.
7. A foam producing, cleansing product according to any of
20 the preceding claims wherein the antibacterial agent is selected from triclosan, trichlocarban, and chlorhexidine.
8. A foam producing, cleansing product according to any of
25 the preceding claims wherein the liquid composition has a pH in the range of about 3.5 to 6.5.
9. A foam producing, cleansing product according to any of
the preceding claims wherein the liquid composition is clear.

- 21 -

10. A foam producing, cleansing product according to any of the preceding claims wherein the foam dispenser is selected from a mechanical foam dispenser, and a squeezable foam dispenser.
- 5
11. A method of depositing a hydrophobic antibacterial agent onto the skin comprising the steps of:
- dispensing the foam producing, cleansing product of claim 1 onto the skin as a foam;
- 10 rubbing the foam on the skin; and
- rinsing the excess foam from the skin with water.
12. A method of removing waxy cosmetics from the skin comprising the steps of:
- 15 dispensing the foam producing, cleansing product of claim 1 onto the skin as a foam;
- rubbing the product on the skin coated with the waxy cosmetics; and
- 20 rinsing the thus loosened cosmetics and excess product from the skin with water.
13. A method according to claim 11 or claim 12 wherein the foam has a foam density of about 0.05 to 0.20 g/ml when dispensed.
- 25

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 March 2002 (07.03.2002)

PCT

(10) International Publication Number
WO 02/017876 A3

(51) International Patent Classification⁷: **A61K 7/50**,
7/48, 7/00, C11D 3/00

& Personal Care USA, 40 Merritt Boulevard, Trumbull,
CT 06611 (US).

(21) International Application Number: PCT/EP01/08576

(74) Agent: **MULDER, Cornelis, Willem, Reinier**; Unilever
PLC, Patent Department, Colworth House, Sharnbrook,
Bedford, Bedfordshire MK44 1LQ (GB).

(22) International Filing Date: 24 July 2001 (24.07.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/229,202 31 August 2000 (31.08.2000) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,
SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(71) Applicant (*for AE, AG, AU, BB, BZ, CA, CY, GB, GD, GH,
GM, IE, IL, KE, LC, LK, LS, MN, MW, NZ, SD, SG, SL, SZ,
TT, TZ, UG, ZA, ZW only*): **UNILEVER PLC** [GB/GB];
Unilever House, Blackfriars, London EC4P 4BQ (GB).

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
TG).

(71) Applicant (*for all designated States except AE, AG, AU,
BB, BZ, CA, CY, GB, GD, GH, GM, IE, IL, KE, LC, LK,
LS, MN, MW, NZ, SD, SG, SL, SZ, TT, TZ, UG, ZA, ZW*):
UNILEVER NV [NL/NL]; Weena 455, NL-3013 AL Rot-
terdam (NL).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(71) Applicant (*for IN only*): **HINDUSTAN LEVER LIM-
ITED** [IN/IN]; Hindustan Lever House, 165/166 Backbay
Reclamation, Mumbai 400 020, Maharashtra (IN).

(88) Date of publication of the international search report:
22 August 2002

(72) Inventors: **HAYWARD, Christine**; Unilever Home &
Personal Care USA, 40 Merritt Boulevard, Trumbull, CT
06611 (US). **PARADES, Rosa, Mercedes**; Unilever Home

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: **FOAMING ANTI-BACTERIAL CLEANSING SKIN PRODUCT**

(57) Abstract: A foaming cleansing product is provided as a cleansing composition packaged in a non-aerosol pump dispenser. The dispenser includes a container for holding a liquid composition, a dispensing head with a housing enclosing a pump mechanism and a screen material in the flow path to convert liquid composition into a foam

WO 02/017876 A3

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/08576

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K7/50 A61K7/48 A61K7/00 C11D3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K C11D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 91 17237 A (PROCTER & GAMBLE) 14 November 1991 (1991-11-14) page 3 -page 5, paragraph 1 page 10, last paragraph page 12, paragraph 3 page 13, line 29 - line 32 claims 1,3,5,6,10-19	1,2,5-13
Y	page 12, paragraph 2 page 13, last paragraph	1-13
Y	WO 99 39689 A (UNILEVER PLC ;LEVER HINDUSTAN LTD (IN); UNILEVER NV (NL)) 12 August 1999 (1999-08-12) page 21, line 1 - line 4	1-13

-/-



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the International filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the International search

27 June 2002

Date of mailing of the International search report

03/07/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Pel11 Wablat, B

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/08576

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 15133 A (PROCTER & GAMBLE) 1 April 1999 (1999-04-01) page 3 page 6, line 26 - line 36 page 14, line 24 - line 25 page 15, line 38 -page 16, line 9 examples claims 1,8-14,16,17 -----	1,4,7,8, 10
A	US 3 962 150 A (VIOLA LEONARD J) 8 June 1976 (1976-06-08) column 2, line 21 - line 38 column 4, line 46 - line 52 -----	1-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 01/08576

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1-13
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-13

Present claims 1-13 relate to an extremely large number of possible products. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the products claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the products free of water insoluble emollient (0.00 wt %).

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 01/08576

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9117237	A	14-11-1991	AU 7560091 A	27-11-1991
			CA 2078441 A1	28-10-1991
			CN 1055109 A	09-10-1991
			EP 0526473 A1	10-02-1993
			IE 911000 A1	09-10-1991
			MX 171703 B	10-11-1993
			NZ 237584 A	27-09-1994
			PT 97187 A	31-12-1991
			WO 9117237 A1	14-11-1991
WO 9939689	A	12-08-1999	US 6030931 A	29-02-2000
			AU 2619699 A	23-08-1999
			CA 2316765 A1	12-08-1999
			CN 1289247 T	28-03-2001
			WO 9939689 A2	12-08-1999
			EP 1052971 A2	22-11-2000
			JP 2002502807 T	29-01-2002
			ZA 9900524 A	25-07-2000
WO 9915133	A	01-04-1999	WO 9915133 A1	01-04-1999
			JP 2001517605 T	09-10-2001
US 3962150	A	08-06-1976	NONE	

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.